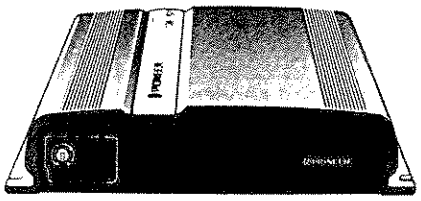
PIONEER
The Art of Entertainment

● GM-202/X1H/UC

Manual



ORDER NO.
CRT1643

BRIDGEABLE POWER AMPLIFIER

GM-202 X1H/UC
GM-202 X1H/EW,ES
GM-102 X1H/UC

CONTENTS

1. SAFETY INFORMATION(UC MODEL) 2
2. DISASSEMBLY.....2
3. ELECTRICAL PARTS LIST.....3
4. CONNECTION DIAGRAM (GM-202/X1H/UC,EW,ES)....5
5. SCHEMATIC CIRCUIT DIAGRAM (GM-202/X1H/UC,EW,ES)....7
6. CONNECTION DIAGRAM(GM-102/X1H/UC).....9
7. SCHEMATIC CIRCUIT DIAGRAM (GM-102/X1H/UC).....11
8. EXPLODED VIEW.....13
9. PACKING METHOD.....16
10. OPERATIONS AND CONNECTION (GM-202/X1H/UC).....17
11. OPERATIONS AND CONNECTION (GM-102/X1H/UC).....19

SPECIFICATIONS

Power source .....14.4V DC (10.8 — 15.6 V allowable)
Grounding system .....Negative type
Current consumption
.....12.5 A (at continuous power, 4Ω)
Average current drawn.....3.5A (4Ω for two channels)
6A (4Ω for one channel)
Fuse 15A
Dimensions .....206(W)×50(H)×175(D)mm
[8-1/8(W)×2(H)×6-7/8(D)in.]
Weight.....1.9 kg
(2.2 lbs.) (Leads for wiring not included)
Maximum power output.....70W×2/160W×1 (EIAJ)
Continuous power output
.....35W×2(at 14.4V, 4Ω, 20 — 20,000 Hz, 0.08% THD)
80W×1(at 14.4V, 2Ω, 20 — 20,000 Hz, 0.8% THD)
50W×2(at 14.4V, 2Ω, 20 — 20,000 Hz, 0.8% THD)
25W×2(at 12V, 4Ω, 20 — 20,000 Hz, 0.08% THD)
55W×1(at 12V, 4Ω, 20 — 20,000 Hz, 0.8% THD)
35W×2(at 12V, 2Ω, 20 — 20,000 Hz, 0.8% THD)
Load impedance.....4Ω (2 — 8Ω allowable)
Frequency response.....10 — 50,000 Hz (+0dB, –1dB)
Signal-to-noise ratio .....105 dB (IHF – A network)
Separation .....60 dB(1kHz)
Input level/impedance .....RCA: 0.4 — 2V/22kΩ
Input level/impedance (GM-X102)
.....Speaker: 1.6 — 8 V/40kΩ

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1. SAFETY INFORMATION(UC MODEL)

CAUTION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer.
Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty.
If you are not qualified to perform the repair of this product properly and safely; you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).
When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

2. DISASSEMBLY

● Removing the Case and Panel

1.Remove four screws, and then remove two cases.
2.Remove two screws, and then remove panel.

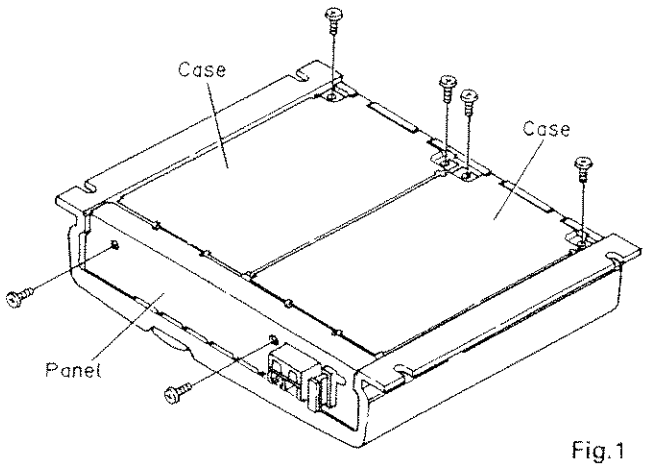

Fig.1

● Removing the Amp Unit

1. Remove eight screws.
2. Amp unit is unremovable from heat sink if pulled up ordinarily, because silicone compound has been applied between heat sink and subheat sink.
   To remove amp unit, therefore, follow steps below.
   a. Unfasten two arbitrary screws securing power transistor.
   b. Screw them little by little alternately into screw holes A to get amp unit afloat and remove it.
3. Once amp unit has been removed, screws with which power transistor has been secured should be returned to thier original position.

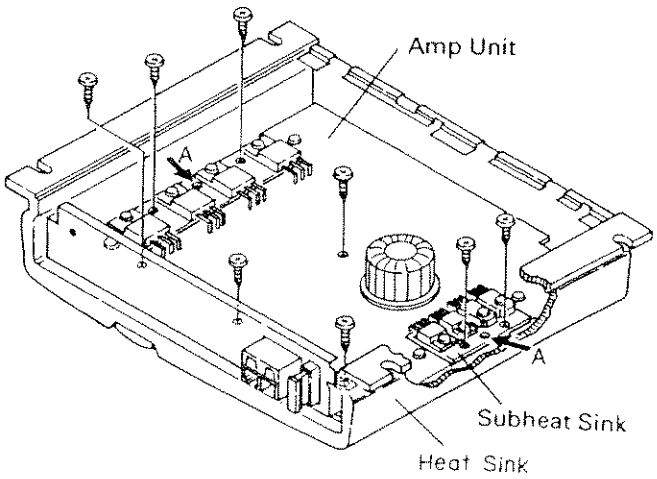

Fig.2

10. OPERATIONS AND CONNECTION(GM-202/X1H/UC)

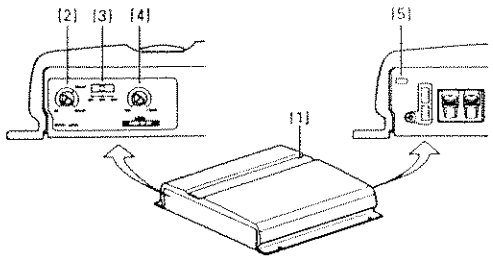

Fig. 9

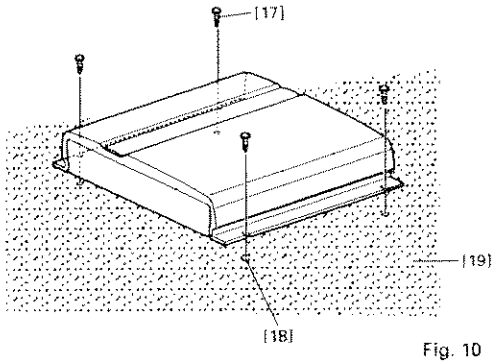

Fig. 10

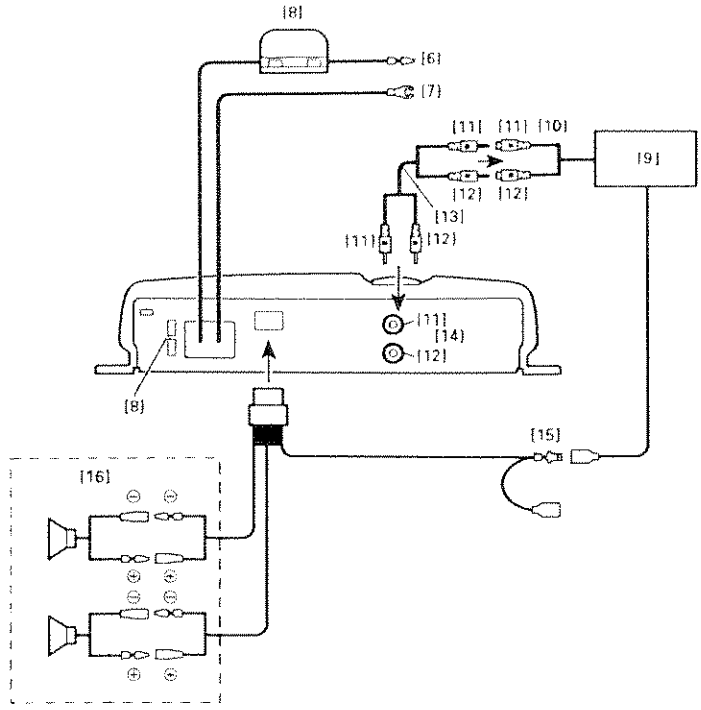

Fig. 11

Setting of This Unit

(Fig. 9)

[1] Power Indicator
The power indicator lights when the power is switched on.

[2] Input Level Adjustment
If the sound is too low, even when the volume of the car stereo used along with this power amplifier is turned up, turn input level control on the back of the power amplifier clockwise. If the sound distorts when the volume is turned up, turn the input level control counterclockwise.
- Set the input level control to 500 mV when this amplifier is connected to a Pioneer car stereo with RCA output jacks. If the sound is too low or distorts, adjust the input level control.

[3] BFC (Beat Frequency Control) Switch
If you hear a beat while listening to an AM broadcast with your car stereo, change the BFC switch using a small screwdriver.

Connecting The Unit

⚠ CAUTION

- *Remove the negative (–) terminal of the battery to avoid the risk of short-circuit and damage to the unit.*
- *Secure the wiring with cable clamps or adhesive tape. To protect the wiring, wrap adhesive tape around them where they lie against metal parts.*
- *If you drill a hole in the engine compartment to directly connect the special red battery lead to the car battery, plug the hole with a rubber bushing to protect the wire. If a rubber bushing is not used, the insulation may be damaged and a short circuit may result due to the vibrations of the car.*
- *Do not route wires where they will get hot, for example where the heater will blow over them. If the insulation heats up, it may become damaged, resulting in a short-circuit through the vehicle body.*
- *Make sure that wires will not interfere with moving parts of the vehicle, such as the gearshift, handbrake or seat sliding mechanism.*
- *Do not shorten any leads. Otherwise the protection circuit may fail to work when it should.*
- *Never feed power to other equipment by cutting the insulation of the power supply wire to tap from the wire. The current capacity of the wire will be exceeded, causing overheating.*
- *Be sure to use the special red battery wire supplied with the amplifier and connect unswitched source greater than 15 A. Use the supplied black ground wire and connect to the vehicle body. (The supplied special red battery and ground wires are designed so that the amplifier can be connected safely.)*

⊘ To prevent damage

- *Do not ground the speaker wire directly or connect a negative (–) wire for several speakers.*
- *Speakers to be connected to the amplifier should conform with the standards listed below. Otherwise damage will be caused to the speaker. The speaker impedance must be 2 to 8 ohms.*

Speaker		Power
Channel	Type	
Two-channel	Sub-woofer	Nominal input: Min. 35 W
	Other than sub-woofer	Max. input: Min. 70 W
One-channel	Sub-woofer	Nominal input: Min. 80 W
	Other than sub-woofer	Max. input: Min. 160 W

- This unit is for vehicles with a 12-volt battery and negative grounding. Before installing it in a recreational vehicle, truck, or bus, check the battery voltage.
- Install and route the special red battery wire supplied with the amplifier as faraway as possible from the speaker wires. Install and route the battery wire, ground wire, speaker wires, and the amplifier as faraway as possible from the antenna, antenna cable and tuner.

(Fig. 11)

[6] Special red battery wire
Connect to unswitched source greater than 15 A.
[7] Ground wire (black)
Connect to metal body or chassis.
[8] Fuse (15 A)
[9] Car stereo with RCA output pin jacks
[10] External output
[11] White
[12] Red
[13] Connecting wires with RCA pin plugs. (sold separately)
[14] RCA input pin jack
[15] Blue
Connect the male terminal of this wire to the blue wire of the car stereo (system control terminal). The female terminal can be connected to the auto-antenna relay control terminal.
If the car stereo does not have a system remote control terminal, connect the male terminal to the power terminal through the ignition switch.
[16] Speaker output terminal
See the "Connecting the Speakers" section for speaker connection instructions.

Connecting the Power Terminal

- *Be sure to use the special red battery wire supplied with the amplifier and connect unswitched source greater than 15 A. Use the supplied black ground wire and connect to the vehicle body. (The supplied special red battery and ground wires are designed so that the amplifier can be connected safely.)*

Connect the special red battery wire to the POWER terminal (+), and the black ground wire to the GND terminal (–).

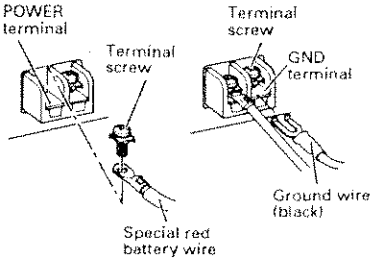

Fig. 12 Fig. 13

- Securely fasten the special red battery wire and the ground wires with terminal screws.

Connecting the Speakers

The speaker output mode can be two-channel (stereo), one-channel (mono), or three-channel (stereo + mono). To connect the speaker wires to suit the mode. Connect the speakers according to the figure below.

Two-channel mode (stereo)

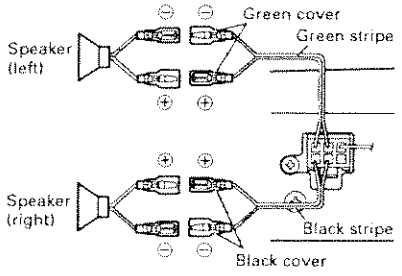

Fig. 14

One-channel mode (mono)

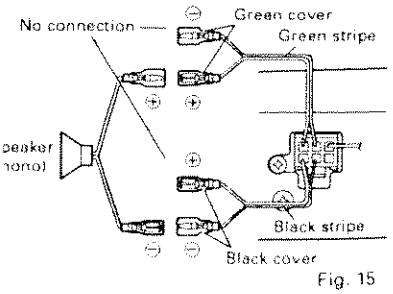

Fig. 15

Three-channel mode (stereo + mono)
The power amplifier is basically a two-channel/one-channel bridgeable amplifier, but three channels can be achieved by combining the stereo and mono modes using inductors and capacitors. See Figs. 16 and 17 for details of wiring.

- *The following Figs. 16 and 17 require advanced understanding of electronics. If you do not understand the diagram, please have the work done by your nearest authorized Pioneer installation specialist.*

Three-channel mode, two-way system

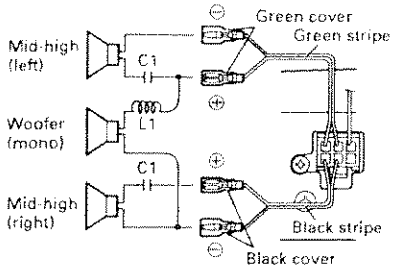

Fig. 16

Three-channel mode, three-way system

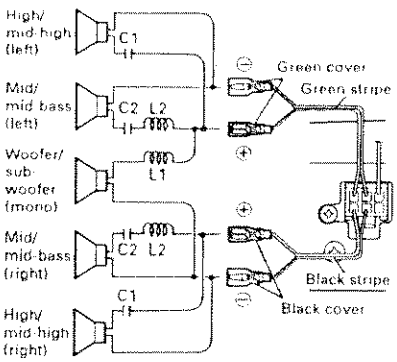

Fig. 17

- The inductor (L1 or L2 in the diagram) acts as a low-pass filter. The capacitor (C1 or C2 in the diagram) acts as a high-pass filter. The inductor (L) shall be used on the woofer/sub-woofer, and capacitor (C) shall be used on the high/mid-high.
- *Remember when bridging an amplifier it will see only half of the original speaker impedance. Therefore, you must use speakers that have ratings of 4 ohms or higher. If you use speakers that have lower impedance ratings it may cause damage to the amplifier.*
- *When the inductors and capacitors are connected to the speaker wires, secure or solder them so they cannot be pulled loose. Tape or use heat shrink on the joints to prevent short circuits.*

Setting the Filter Constant

Low-pass filter (for sub-woofer/ woofer): 6 dB/octave (Fig. 18)

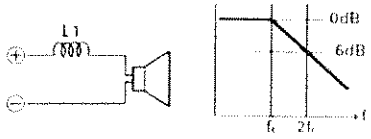

Fig. 18

High-pass filter (for mid/mid-high): 6 dB/octave (Fig. 19)

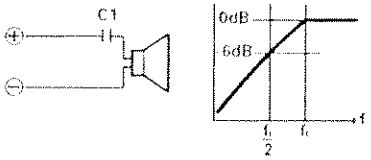

Fig. 19

Band-pass filter (combination of low-pass filter and high-pass filter for mid-bass/mid): 6 dB/octave (Fig. 20)

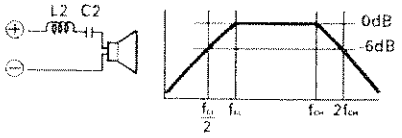

Fig. 20

11. OPERATIONS AND CONNECTION(GM-102/X1H/UC)

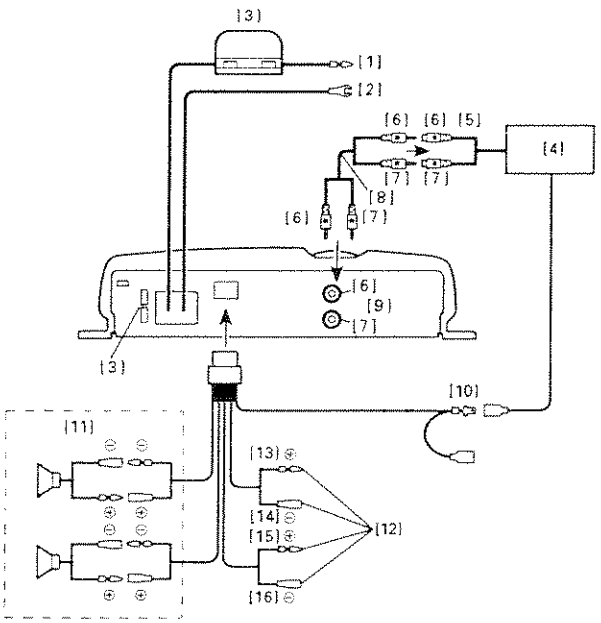

Fig. 21

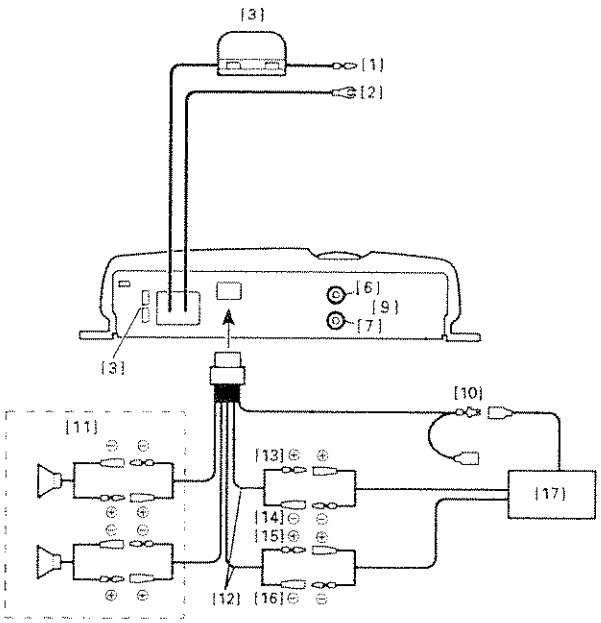

Fig. 22